

In re Patent Application of
STORM ET AL.
Serial No. **Not Yet Assigned**
Filed: **Herewith**

In the Claims:

Claims 1-10 (Cancelled).

11. (New) An image sensor comprising:
an array of pixels, each pixel comprising
a photodiode,
a semiconductor device having a
capacitance and being connected to said photodiode
and operating based upon a sub-threshold for
providing a signal that is proportional to a
logarithm of light intensity on said photodiode, and
a calibration circuit having a capacitance
and for applying a voltage having a constant rate of
change across the capacitance associated with said
semiconductor device and said calibration circuit
for producing a constant current within said pixel.

12. (New) An image sensor according to Claim 11,
wherein each pixel further comprises a switching device
between said photodiode and said semiconductor device, said
switching device being operable during calibration for
isolating said photodiode from said semiconductor device.

13. (New) An image sensor according to Claim 12,
wherein said calibration circuit comprises an amplifier having
an inverting input for receiving the signal from said
semiconductor device, a non-inverting input for receiving a
reference voltage, and an output for providing a pixel output
signal.

14. (New) An image sensor according to Claim 13,

In re Patent Application of
STORM ET AL.
Serial No. **Not Yet Assigned**
Filed: **Herewith**

wherein the reference voltage comprises a ramp voltage for providing the voltage having the constant rate of change.

15. (New) An image sensor according to Claim 14, wherein the ramp voltage is also applied at a beginning of an image-capturing operation of said pixel.

16. (New) An image sensor according to Claim 13, further comprising a feedback loop between the output of said amplifier and said semiconductor device, the feedback loop for controlling said semiconductor device.

17. (New) An image sensor according to Claim 13, wherein each pixel has an image area associated therewith, and said amplifier for each respective pixel is completely within the corresponding image area.

18. (New) An image sensor according to Claim 13, wherein each pixel has an image area associated therewith, and wherein said amplifier for each respective pixel is partly within the corresponding image area.

19. (New) An image sensor according to Claim 13, wherein said semiconductor device comprises a transistor comprising a conducting terminal, and wherein the capacitance is provided by a capacitance of the conducting terminal and a capacitance of the inverting input of said amplifier.

20. (New) An image sensor comprising:
an array of pixels, each pixel comprising
a photodiode;

In re Patent Application of
STORM ET AL.
Serial No. **Not Yet Assigned**
Filed: **Herewith**

a semiconductor device having a
capacitance and being connected to said photodiode;
and

a calibration circuit having a capacitance
and for applying a voltage across the capacitance
associated with said semiconductor device and said
calibration circuit for producing a constant current
within said pixel.

21. (New) An image sensor according to Claim 20,
wherein the image sensor is operating in a logarithmic mode.

22. (New) An image sensor according to Claim 20,
wherein each pixel further comprises a switching device
between said photodiode and said semiconductor device, said
switching device being operable during calibration for
isolating said photodiode from said semiconductor device.

23. (New) An image sensor according to Claim 20,
wherein said calibration circuit comprises an amplifier having
an inverting input for receiving the signal from said
semiconductor device, a non-inverting input for receiving a
reference voltage, and an output for providing a pixel output
signal.

24. (New) An image sensor according to Claim 23,
wherein the reference voltage comprises a ramp voltage for
providing the voltage having the constant rate of change.

25. (New) An image sensor according to Claim 24,
wherein the ramp voltage is also applied at a beginning of an

In re Patent Application of
STORM ET AL.
Serial No. **Not Yet Assigned**
Filed: **Herewith**

image-capturing operation of said pixel.

26. (New) An image sensor according to Claim 23, further comprising a feedback loop between the output of said amplifier and said semiconductor device, the feedback loop for controlling said semiconductor device.

27. (New) An image sensor according to Claim 23, wherein each pixel has an image area associated therewith, and said amplifier for each respective pixel is completely within the corresponding image area.

28. (New) An image sensor according to Claim 23, wherein each pixel has an image area associated therewith, and wherein said amplifier for each respective pixel is partly within the corresponding image area.

29. (New) An image sensor according to Claim 23, wherein said semiconductor device comprises a transistor comprising a conducting terminal, and wherein the capacitance is provided by a capacitance of the conducting terminal and a capacitance of the inverting input of said amplifier.

30. (New) A method for calibrating an image sensor operating in a logarithmic mode, the image sensor comprising an array of pixels, each pixel comprising a photodiode, a semiconductor device having a capacitance and connected to the photodiode, and a calibration circuit having a capacitance and being connected to the semiconductor device, the method comprising:

applying a voltage having a constant rate of change

In re Patent Application of
STORM ET AL.
Serial No. **Not Yet Assigned**
Filed: **Herewith**

across the capacitance associated with the semiconductor device and the calibration circuit for producing a constant current within the pixel during calibration.

31. (New) A method according to Claim 30, wherein each pixel further comprises a switching device between the photodiode and the semiconductor device; the method further comprising operating the switching device during calibration for isolating the photodiode from the semiconductor device.

32. (New) A method according to Claim 31, wherein the semiconductor device operates based upon a sub-threshold for providing a signal that is proportional to a logarithm of light intensity on the photodiode, and the calibration circuit comprises an amplifier having an inverting input for receiving the signal from the semiconductor device, a non-inverting input for receiving a reference voltage, and an output of the amplifier provides a pixel output signal.

33. (New) A method according to Claim 32, wherein the reference voltage comprises a ramp voltage for providing the voltage having the constant rate of change.

34. (New) A method according to Claim 33, wherein the ramp voltage is also applied as the reference voltage at a beginning of an image-capturing operation of the pixel.

35. (New) A method according to Claim 32, wherein each pixel further comprises a feedback loop between the output of the amplifier and the semiconductor device, the feedback loop for controlling the semiconductor device.

In re Patent Application of
STORM ET AL.
Serial No. **Not Yet Assigned**
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36. (New) A method according to Claim 32, wherein each pixel has an image area associated therewith, and wherein the amplifier for each respective pixel is contained completely within the corresponding image area.

37. (New) A method according to Claim 32, wherein each pixel has an image area associated therewith, and wherein the amplifier for each respective pixel is partly within the corresponding image area.

38. (New) A method according to Claim 32, wherein the semiconductor device comprises a transistor comprising a conducting terminal, and wherein the capacitance is provided by a capacitance of the conducting terminal and a capacitance of the inverting input of the amplifier.